

Claims

1. A large portable umbrella includes an umbrella column (1), supporting arms (2), tarpaulin, cover arms (3) supporting tarpaulin, a develop-fold mechanism (4), an upper umbrella disk (5) fixed on the top of the umbrella column (1), and a lower umbrella disk (6) movable up and down along the umbrella column, wherein one end of the cover arms (3) being hinged on the upper umbrella disk (5), one end of the supporting arms (2) being hinged on the lower umbrella disk (6) and the other end of the supporting arms (2) being hinged at the middle of the cover arms (3), characterized in that a: the moving space of the lower umbrella disk (6) is from the upper umbrella disk (5) down to the position of the lower umbrella disk (6) when the large umbrella is developed, and the large portable umbrella is developed when the develop-fold mechanism (4) drives the lower umbrella disk (6) to move downwards along the umbrella column (1), and the large portable umbrella is folded when the lower umbrella disk (6) moves upwards along the umbrella column (1) causing the space between the lower umbrella disk (6) and the upper umbrella disk (5) is shortened; b: each of the cover arms (3) is composed of an upper cover arm (3a) and a lower cover arm (3b), the upper cover arm (3a) and the lower cover arm (3b) being hinged with each other via a position limiting hinge (7) which serves for limiting the developing angle of the lower cover arm (3b).

2. A large portable umbrella according to claim 1 is characterized in that said umbrella column (1) is composed of two or more sections, each section being connected to its adjacent section via a length-dimension-shorten mechanism (8) or an obliquity adjusting mechanism (9) having both obliquity adjusting function and folding function.

3. A large portable umbrella according to claim 2 is characterized in that:

said length-dimension-shorten mechanism (8) is the foldable hinge structure in which the connecting ends of two adjacent sections of the umbrella column (1) are hinged on one side and a snap-close structure is provided on the other side; or

said length-dimension-shorten mechanism (8) is a coaxial axial muff-coupling structure formed between two adjacent sections in which the internal and external diameter of two adjacent sections of the umbrella column (1) are matched and a position limiting lock is used; or

said length-dimension-shorten mechanism (8) is a detachable fitting structure in which the internal and external diameter of the connecting ends of two adjacent

sections of umbrella column (1) are matched; or

said length-dimension-shorten mechanism (8) is a screw-thread-fit structure in which the matching screw hole (10) and screw bolt (11) are provided on the connecting ends of two adjacent sections of umbrella column (1), wherein the screw hole (10) having internal thread.

4. A large portable umbrella according to claim 2 is characterized in that:

said obliquity adjusting mechanism (9) includes two opposite hinge blocks (12, 13); the ends of the upper and the lower sections of the umbrella column (1) are hinged on the upper and the lower ends of both hinge blocks (12, 13) via a pin axis (14) respectively and clipped between the hinge blocks (12, 13); a elastic lock-pin (15) is provided in the middle of the hinge blocks (12, 13); one end of the elastic lock-pin (15) is a clip-pin (15a), which is provided in a clip cavity on the hinge block (12) corresponding to the clip-pin (15a) and moves transversely in the clip cavity; two or more groups of clip-grooves (16) matched with the clip-pin (15a) are provided at intervals on one side of the ends of the upper and the lower sections of the umbrella column (1) corresponding to the clip-pin (15a), and the clip-grooves (16) are radially provided relative to the pin axis (14); the other end of the elastic lock-pin (15) is provided with a button (15b), which is provided in a button cavity (17) on the hinge block (13) corresponding to the button (15b) and moves transversely in the button cavity (17); at the middle of the elastic lock-pin (15) is a pin (15c) for connecting the button (15b) and the clip-pin (15a); a pressure spring (15d) compelling the clip-pin (15a) to lock into the clip-grooves (16) all along is provided between the button (15b) and the bottom of the button cavity (17); or

said obliquity adjusting mechanism (9) includes two opposite hinge blocks (12, 13); the ends of the upper and the lower sections of the umbrella column (1) are hinged on the upper and the lower ends of both hinge blocks (12, 13) via pin axis (14) respectively and clipped between the hinge blocks (12, 13); a worm (19) is provided in the middle of the hinge blocks (12, 13); the ends of the upper and the lower sections of the umbrella column (1) are designed to form worm wheels (20) which engage with the worm (19); or

said obliquity adjusting mechanism (9) includes two opposite hinge blocks (12, 13); the ends of the upper and the lower sections of the umbrella column (1) are hinged on the upper and the lower ends of both hinge blocks (12, 13) via pin axis (14) respectively and clipped between the hinge blocks (12, 13); a screw lock (23), which

can clamp the hinge blocks (12, 13) and release them, is provided in the middle of the hinge blocks (12, 13).

5. A large portable umbrella according to claim 1 is characterized in that:

said position limiting hinge (7) is of the following structure: a lug (30) having is provided on the side of the ends of the upper cover arms (3a) and the lower cover arms (3b) facing tarpaulin; the upper cover arms (3a) and the lower cover arms (3b) are hinged together through the lug (30) by a pivot(31); when the lower cover arms (3b) are developed, the upper cover arms (3a) get exactly contact with end face of the lower cover arms (3b), thereby limiting the developing angle of the lower cover arms (3b); or

said position limiting hinge (7) is of the following structure: the ends of the upper cover arms (3a) and the lower cover arms (3b) are designed to form semicircle; a position limiting groove board (32) is provided on the side of the cover arms (3) opposite to tarpaulin; the upper cover arms (3a), the lower cover arms (3b) and the position limiting groove board (32) are hinged together via a pin (33) passing through the center of the semicircle ends and both sides of the position limiting groove board (32); or

said position limiting hinge (7) is of the following structure: two opposite hinge blocks (34) are provided; position limiting board (35) connecting both hinge blocks (34) is provided in the middle of the side of the hinge blocks (34) facing tarpaulin; position limiting block (36) is provided on the side of the cover arms opposite to tarpaulin; ends of the upper cover arms (3a) and the lower cover arms (3b) are hinged respectively at the ends of both hinge blocks (34) and clipped between both hinge blocks (34); or

said position limiting hinge (7) is of the following structure: a bending hinge head (37) is provided, and on its upper end, lower end and bending portion are provided with upper, lower and middle hinge pivot points respectively, wherein the upper cover arms (3a) being hinged on the upper hinge pivot point (37a), the lower cover arms (3b) being hinged on the middle hinge pivot point (37b), and the supporting arms (2) being hinged on the lower hinge pivot point (37c); moreover, unilateral position limiting end (37d) for limiting the developing angle of the lower cover arms (3b) is provided on the side of the hinge head (37) opposite to tarpaulin.

6. A large portable umbrella according to any of claims 1-5 is characterized in that: said develop-fold mechanism (4) of the large portable umbrella includes a rope (24) and a lever-spanner (25); one end of the rope (24) is fixed on the lower umbrella disk (6), and the other end is fixed on the middle of the lever-spanner (25); one end of the

lever-spanner (25) is hinged on the umbrella column (1).

7. A large portable umbrella according to any of claims 1-5 is characterized in that: a pressure spring (29) is provided on the umbrella column (1) between the upper umbrella disk (5) and the lower umbrella disk (6).

8. A large portable umbrella according to any of claims 1-5 is characterized in that: a tension spring (38) convenient for developing the lower cover arms (3b) is provided between the lower cover arms (3b) and the upper cover arms (3a) or between the lower cover arms (3b) and the supporting arms (2).

9. A large portable umbrella according to any of claims 1-5 is characterized in that: the upper end of the upper cover arms (3a) is provided with a bending head (3c), through which the upper cover arms (3a) are hinged on the upper umbrella disk (5).

10. A large portable umbrella according to any of claims 1-5 is characterized in that: the umbrella column (1) protrudes from the upper umbrella disk (5); a top umbrella disk (39) is fixed on the top of the umbrella column (1); short cover arms (40) supporting top tarpaulin are hinged around the top umbrella disk (39); top supporting arms (41) are hinged between the short cover arms (40) and the upper cover arms (3a) to form a linkable develop-fold four-connection mechanism, thereby making the large umbrella become a dual-layer umbrella that can be developed and folded simultaneously.